STREAMIT
IP Media Devices

Streamit Maven user manual [firmware version 2.22.0]

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1 Foreword

We would like to thank you for purchasing the Streamit audio-video encoder Maven. The Maven is an audio-video encoder which easily transmits video and audio over the internet.

Via the graphical interface it is easy to configure the Maven. After that you literally only need a single button press to convert the analog audio- (RCA) and videosignal (S-Video or Composite) to a videostream (UDP, RTP, MPEG-TS, HTTP, RTMP or HLS) to transmit via the internet. The method that is used (H264/AAC), guarantees high quality audio and video with limited bandwidth use.

In addition the Maven can also transmit an MP3 audio-only stream[1]. This function is specifically meant for people who use receivers that can play only audio. For example a Lukas, SIR, or Lisa device. This makes it possible to serve both viewers and listeners with only one encoder.

The Maven is part of a complete Streamit solution including: distribution, storage and playing video via internet. This way a video stream can easily be made available for viewers all over the world. By using international standards the Maven is ready to connect to other systems like Wowza's Media Server and can be used for a large number of other applications.

For more information about the products and solutions that Streamit can offer, we would like to invite you to visit our website: http://www.streamit.eu.

Finally, we wish you a lot of success using your Maven.

Streamit B.V.

1.1 Maven versions

There are different versions of the Maven. This manual is intended for all versions. The functional differences between the different Maven versions are as follows:

Function	Maven	Maven Nano
Audio-video streaming	✓	✓
Audio-only streaming	✓	
Local recording	✓	✓
Serial port control	✓	✓

1.2 Included materials

Check if the following parts are in the box when recieving it. If one or more parts are missing or damaged, please contact your Streamit dealer or sales employee.

- Maven
- Power adapter
- Video capturing accessory
  - Maven: Break-out cable (See figure 1)
  - Maven Nano: EzCAP video capture device with USB extension cord (See figure 2)
- Ethernet cable

[1] Not all functions are available for all versions of the Maven, see section 1.1 *Maven versions*

Fig. 1: Break-out cable for the Maven

Fig. 2: EzCAP video capture device for the Maven Nano

If you have some knowledge of internet and PCs, you will be able to configure the Maven yourself, using this manual and the right equipment.

The operation of the Maven is very easy, you just have to operate a single button: the power button.

1.3 Introduction

In this user manual the following symbols will be used for important instructions. Always pay attention to the instructions accompanied with these symbols.

Instructions which could cause injury to persons or damage to the device as result of not following the instructions when operating the device. These instructions do always need to be followed for safe operation.

Instruction which is required to understand the correct functioning of the device.

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Disclaimer This manual has been carefully validated and reviewed. The instructions and descriptions were correct for the Maven at the time this manual was printed. Newer Streamit audio-video encoders and manuals can be changed without notification. Streamit assumes no liability for damage which are directly or indirectly related to errors or omisions in this manual, or discrepancies between this product and the manual.
See the Streamit website (http://www.streamit.eu) for the latest version of this manual.
EU Declaration of Conformity

CE This product carries the CE-mark in conformation with the relevant European guidelines. The responsibility for the allocation of this conformity lies with Streamit BV, Langendijk 7, 5652 AX Eindhoven, Netherlands.

1.4 If you do not succeed

We can imagine that the installation of the Maven for persons with limited knowledge of computers and software can be difficult, but this is not necessary.

In case you cannot get it to work, we would like to ask you to contact the person from whom you bought or received the Maven. Streamit only supports (through telephone or email) customers who bought the Maven directly from Streamit. In addition we deliver free support via the support page on our website http://streamit.eu/support/.

2 Installation

2.1 Additional requirements

To stream video via internet, you need the following in addition to the Maven:

- A broadband internet connection, with a minimal upload speed of 1Mbit per second.
- A subscription or provider who supports the Maven, like Streamit. For more information see the Streamit website http://www.streamit.eu/

! Often an ADSL-connection does not deliver the advertised speed. You can check the actual speed of your connection easily on Visualware: http://myspeed.visualware.com/ and get an indication whether your connection is suitable for streamig video.

2.2 Preparing the Maven

⚠ When installing the Maven, it is of great importance that the Maven has sufficient room to ventilate. Do not cover the ventilation openings at the top side of the Maven. If the Maven gets too warm, it won't function correctly anymore.

Fig. 3: Front of the Maven

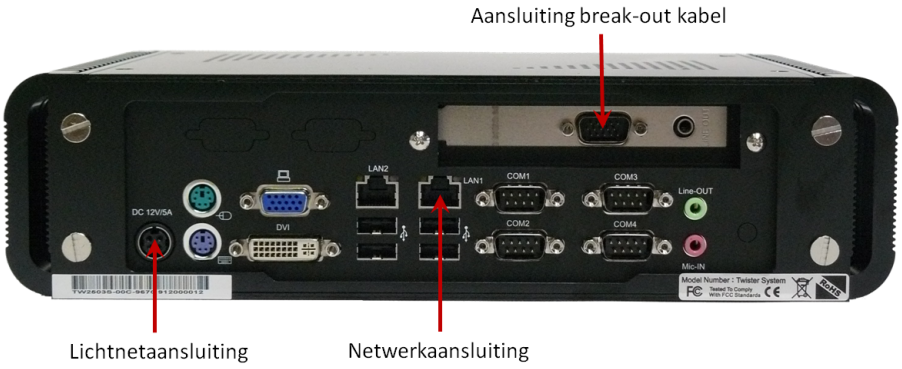

Fig. 4: Back of the Maven

2.3 Connecting the Maven to the audio/video-installation

Put the break-out cable in the indicated connection or the EzCAP video capture device in a USB slot at the back side of the Maven. Connect the signal cables of the audio/video installation to the break-out cable or the EzCAP video capture device.

To keep audio and video synchronous it is important that the path between the source and the Maven is as short as possible and that there is as little difference as possible between the path for the audio- and video signal.

Important! For a reliable operation of the Maven, the audio installation has to be connected via a galvanic isolator. This is available at Streamit.

2.4 Connecting the Maven to the mains

Plug the power cord into the mains outlet and then plug the other end of the cord in the Maven.

- Never use wet hands to plug the power adapter in the mains and never remove the power adapter from the mains with wet hands.
- Do not cut or damage the cord of the power adapter. Do not place heavy objects on the cord. This can cause short-circuit, resulting in electrical shocks or even fire.
- Pulling the cord can damage the wire and/or isolation causing electrical shocks or fire.
- Using power adapters other than the one recommended for your Maven, can result in overheating and damage your device. This can cause fire, electrical shocks and other hazards. Only use the supplied power adapter.
- Do not use, place, or store the Maven in places that are subject to intense sun light or high temperatures. This may discolour and/or deform the Maven. Make sure there is sufficient ventilation around the power adapter and around the Maven.
- Exposing the Maven to situations with rapid changing temperatures can result in condensation (a small amount of water) on the inner and outer surface of your device. To ensure a long lifetime of your Maven, this should be prevented. In case of such a scenario, wait until you device is 'dry' before you use it again.

2.5 Connection of the Maven to the ethernet connection or ADSL router

Connect the included ethernet cable to the LAN1 connection of the Maven. Connect the other end of the ethernet cable to the ethernet connection of the local network, or the ADSL router.

Only the network connection LAN1 is active, make sure that you do *not* use connection LAN2.

The greed LED next to the LAN1 connector should light up continuously when the connection is made. The yellow LED should start to flicker intermittently. If this is not the case, go to the section Troubleshooting (section 14) to read what could be the cause.

3 The configuration interface

The Maven has a configuration interface that consists of a number of pages to setup e.g. the audio, the video, and the streams. This is explained in more detail below. The configuration interface can be called up in two ways: On the Maven itself and via a browser.

3.1 On the Maven itself

The configuration interface on the Maven is accessible by connecting a monitor, keyboard, and mouse and pressing `F10`. Press `Esc` to leave the configuration interface.

3.2 Via a browser

The configuration-interface of the Maven is also accessible by navigating in a browser to the IP address of the Maven: http://<Maven IP address>. You can find this IP address in two places:

- In the Maven register (see also section) http://register.streamit.eu/maven. You can click on the IP address directly, it is a link to the webinterface of the Maven.

- On the Status page if you call up the configuration interface on the Maven itself (see the instructions above).

If you have problems accessing the webinterface of the Maven, read the instructions in section 14.12 *The webinterface of the Maven is not accessible.*

It is strongly advised to make access to the configuration interface via a browser also possible from outside the local network. That enables remote firmware updates and allows for better support in case of problems. Configure port-forwarding for port 80 on the router between the Maven and the internet. See the manual of the router for instructions regarding configuration of port-forwarding.

3.3 Name and password for the configuration interface

When you access the configuration interface, you will be asked for a user name and password (except for the Status page). Enter the following credentials[2]:

user name	streamit
password	lukas

[2]The credentials can be changed on the Misc page in the configuration interface.

4 Configuring the Maven

4.1 Network configuration

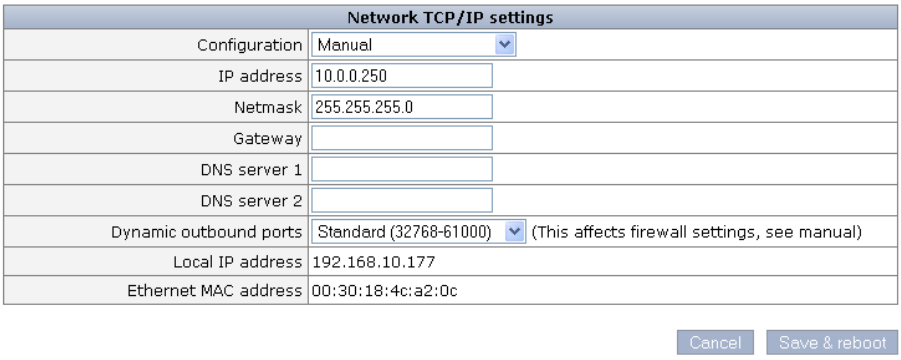

Fig. 5: Maven network page

You can configure the IP address of the Maven in this page. At the bottom of the page the currently used IP address and the Ethernet MAC address are shown.

We recommend you to have an IP address automatically assigned to the Maven (DHCP), this is the default setting of the Maven. If you decide to give the Maven a static IP address, take the network configuration of your router into account!

If the audio/video stream uses UDP ports, it might be required for the firewall behind the Maven to open the Dynamic Outbound ports, also called Ephemeral ports. To limit the number of ports, a feature has been built in to limit the port range.

By clicking on the button 'Save & reboot' the new network settings are saved. Then the Maven reboots to activate the new settings.

4.2 Audio configuration

You can configure the following on this page:

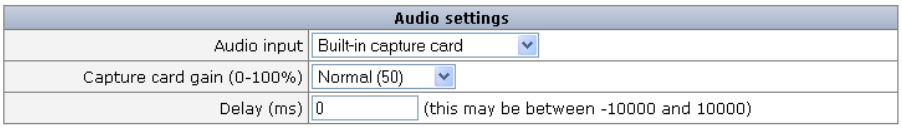

Fig. 6: Maven audio page

Field	Setting
Audio input	Built-in capture card, Mic/Line input[1], Roland VR-3 / VR-5 (USB) or the Behringer UCA222 (USB)[2]
Gain (0-100%)	Set the strength of the signal when encoding the audio. This can be done in five steps, from 'Very Low' to 'Maximum'. By default you do not have to change anything in the field 'Audio Gain', but if the incoming audio signal is very weak or loud, you can adjust here.
Delay (ms)	Adjust the delay between the audio- and videosignal. If the audio is ahead of the video, enter a positive value to delay the audio. If the audio lags, enter a negetive value to speed up the audio.

[1] If available for the type of Maven you have. The Mic/Line input can be used for a single stream only: Either an audio-video stream or audio-only stream. It is not possible to generate an audio-video as well as an audio-only stream when Mic/Line is used as audio input.

[2] The Behringer UCA222 input can be used for a single stream only: Either an audio-video stream or audio-only stream. It is not possible to generate an audio-video as well as an audio-only stream when Behringer UCA222 is used as audio input.

4.3 Video configuration

You can configure the following on this page:

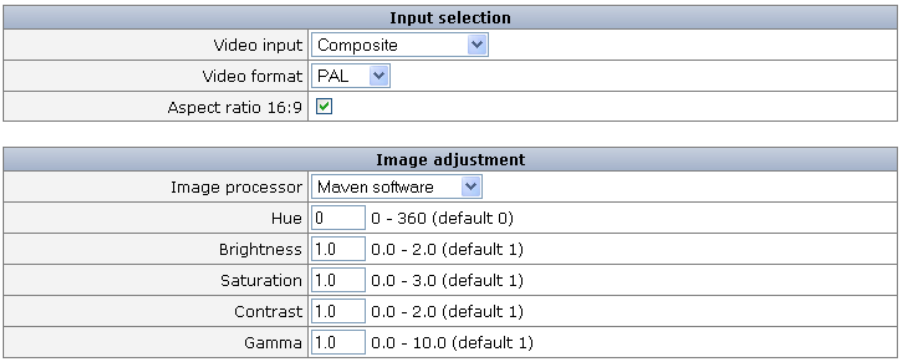

Fig. 7: Maven video page

Field	Setting
Video input	Composite, S-Video, EzCAP Composite (USB), EzCAP S-Video (USB) or the Roland VR-3 / VR-5 (USB)
Video format	PAL or NTSC.
Aspect ratio 16:9	By checking this box, the video image will be transmitted in 16:9 ratio instead of 4:3
Image processor	Choose which part of the Maven processes the images (color, brightness, etc.). It can be the software of the Maven, but also the hardware[1] that converts the images from analog to digital. Which options for image processing are shown, depends on the chosen image processor.
Hue, Brightness, Saturation, Contrast, Gamma	Settings for the corresponding image parameters

[1] If available for the Maven image(operating system) on your Maven hardware.

4.4 Streaming configuration

The Maven can send two streams: one audio-video stream and one stream with only audio[3,4].

Click on the button: ('Audio/video stream' or 'Audio-only stream') and choose the stream type:

Audio and video	A stream with and audio and video, see 4.4.1 for the configuration
Audio only	A stream with just audio, see 4.4.2 for the configuration

4.4.1 A stream with audio and video

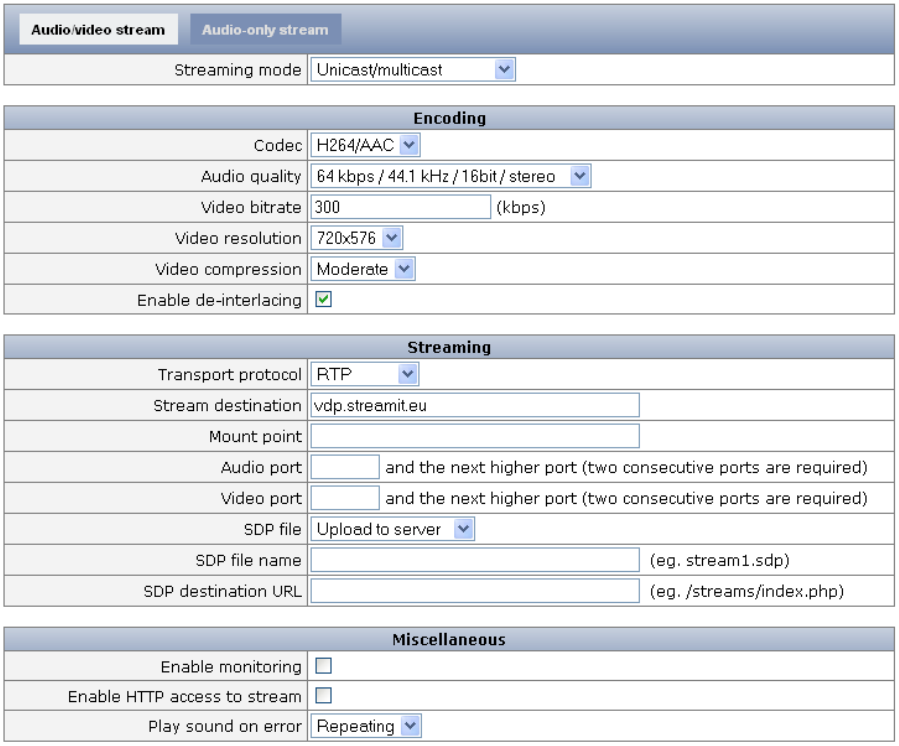

Fig. 8: Maven audio-video stream page

Field	Setting
Streaming mode	You can choose from different possibilities here, depending on your use. We will explain some often used applications below.
Streamit AVDP	You want to use the Streamit Audio Video Distribution Platform (AVDP).
Direct Connection (STL)	You want to setup a direct connection between the Maven and a video decoder, without using a streaming server in between.
Unicast/multicast	You want to use an another method of streaming. This can be a different (Wowza) streaming server, a different receiver, or for example multicast for distribution to (many) receivers in a local network

[3] This function is exactly the same as the SAS100, so the functionality of the SAS100 is part of the Maven.
[4] This function is not available on the Maven Nano

You can set up several things for an audio-video stream. Which options are displayed, depends on the chosen streaming mode and possible choices for that streaming mode. You will find an overview of the different options with a short explanation:

Irrelevant options are automatically omitted in the webinterface of the Maven. Therefore, always fill in all fields, unless you are very sure you can leave the field empty.

Field	Settings
Codec	You can select the audio and video codec here.
Audio quality	You can set the bitrate of the audio part of the stream here. The higher the bitrate, the better the quality, but also more bandwith that is used.
Video bitrate	You can set the bitrate of the video part of the stream here. The higher the bitrate, the better the quality, but also more bandwith that is used.
Video resolution	You can set the number of pixels here (horizontal x vertical) that has to be transmitted. The more pixels, the more detail.
Video compression	You can set the compression level of the video signal here (only for H264). A higher value for the compression level gives a better image, but also requires more computation power. This increases the chance that errors occur with complex image changes. In general lower settings result in better results at high resolutions. The higher levels can be used in combination with lower resolutions.
Enable de-interlace	De-interlacing results in most cases in a higher quality stream, it is recommended to keep this on. In case of a striped image you can try to turn de-interlacing off and see if it gets better.
Transport protocol	You can set the transport protocol for the stream here. The options are RTP, UDP (is always an MPEG transport stream), RTMP, HLS, HTTP and MPEG-TS (is always RTP)
Stream destination	URL or IP address of the reciever of the stream. This is provided by your streaming service provider.
Mount point	The name of your account. This is provided by your streaming service provider. (External stream server and Streamit AVDP)
Port	Port on the AVDP to which the audio is sent. The video port is Port+2. This is provided by your streaming service provider. (With Streamit AVDP only)
Server	You can set the server here to which the stream must be sent (only for RTMP). This is provided by your streaming service provider.
Stream	You can set the stream name here (only for RTMP and HLS). For RTMP this is provided by your streaming service provider.
Audio port	Port on the reciever of the stream to which the audio is sent.
Video port	Port on the reciever of the stream to which the video is sent.
Upstream port	Port to which the MPEG transport stream is sent.
Local port	Port on which the stream is accessible on the Maven. The following ports cannot be used: • ports below 1024 • port 8001 • port 8080 • the port that is selected for the audio only stream (if the Maven functions as audio server)
Segment length	The number of seconds of audio/video each segment should contain (Only for HLS). Apple recommends 10.

Continued...

Field	Settings
Number of segments	The number of segments that are kept in the index file (Only for HLS). This must be at least 3.
SDP file	Here you can indicate if and how the stream description file (SDP file) must be made available. The options are 'Not required' (no SDP file is created), 'Upload to server' (the SDP file is sent to the server, see 'SDP destination URL'), and 'Served by Maven' (the SDP file is available from the Maven, this part of the URL on the status page of the Maven, see 6)
SDP file name	Name of the SDP file as it is recognised by the video platform. (Not with Direct connection)
SDP destination URL	You can set here where the SDP file has to be sent. When a relative URL is given (e.g. /streams/index.php), it will be combined with the adress that is given at 'Stream destination' to make a complete URL.
Enable monitoring	When monitoring is active, a message is sent every minute via HTTP. By this the receiver (see 'Monitoring URL') knows that the Maven is still online.
Monitoring URL	Location to which the monitoring information has to be sent. When a relative URL is given (e.g. /streams/index.php), it will be combined with the adress that is given at 'Stream destination' to make a complete URL.
Direct access to stream	You can set here, if the stream should be accessible directly from the Maven and how. The options are 'Disabled' (stream is not directly accessible), 'HTTP', and 'HLS'. This stream comes straight from the Maven and is identical to the other stream that is transmitted. This can be used for example to see what the Maven sends out. The URL at which the stream is accessible, is shown on the status page after 'Stream URL' (see section 6).
Play sound on error	You can indicate here how often the Maven makes a downward series of tones when internet- or serverproblems occur: Never, 1 time, or every five seconds.

There is a relation between the camera image, the resolution (the number of pixels), the amount of motion in the image and the video bitrate. The more colorful and the more varied the image is that the camera delivers, the higher the bitrate that is required to transmit the image with sufficient quality. The more motion there is in the image, the more bits (higher bitrate) are needed to display that motion right.

With a given resolution and bitrate combination it is always possible to calculate the number of bits per pixel. The more bits per pixel, the better the image (as long as the network connection can handle it). At some point 'saturation' occurs, where a higher bit rate does not help, because there are enough bits to display each pixel correctly.

The more pixels, more details can be passed in the picture, but only if the bitrate is sufficient to transmit the details with sufficient quality. More pixels (higher resolution) with the same bit rate gives a lower quality and not necessarily a better viewing experience. An exception to this is the situation where the bitrate is more than sufficient for the chosen resolution. In that case the image can become better by just increasing the resolution.

If you have a good image quality at (for example) 3 bits per pixel and you increase the resolution, you will need a higher resolution of 3 to the power of 0.75 bits per pixel for the same quality. For example:

	Current resolution	**Higher resolution**
Pixels	352 x 288	768 x 576
Bitrate	300	*to be determined*
Bits/pixel	2.96	$2.96^{0.75} = 2.26$

Then the required bitrate for the same quality is

$$\frac{768(hor)\cdot 576(ver)\cdot 2.26(bitperpix)}{1000} = 998Kbps$$

It is important to vary these parameters when configuring the Maven to tune optimally to the local situation.

4.4.2 An audio only stream

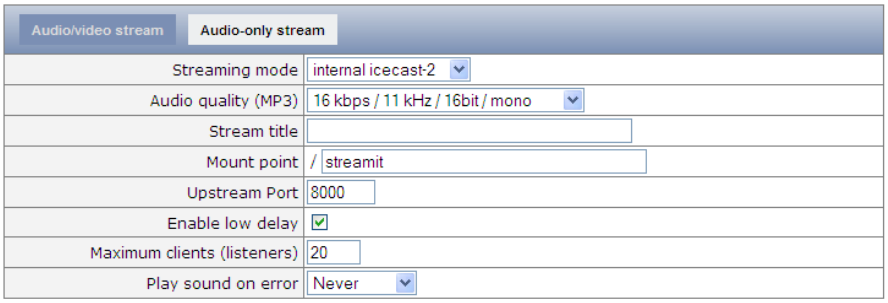

Fig. 9: Maven audio-only stream page

You can set up te following for an audio only stream:

Field	Settings
Stream Type	Stream Type can be set to internal icecast-2, external shoutcast, external icecast-2 or disabled.
Audio quality (MP3)	Here can you set the bitrate of the stream. The higher the bitrate, higher the quality but also the more bandwith is needed for listeners.
Stream title	Here can you give a short description of the stream.
External stream server	URL of the external streaming server. This is provided by your streaming service provider. (not for internal icecast-2 server)
Mount point	The name of the stream, this will return in the URL (not for shoutcast server).
Upstream port	Port to which the audio is sent. This is provided by your streaming service provider. Note: For internal icecast-2 server this port is used to retrieve the stream, and then the following ports cannot be used: • ports below 1024 • port 8001 • port 8080 • the port that is selected for the audio video stream (if the Maven functions as server for this stream)
Maximum clients	The maximum number of listeners that can listen to this stream. This is important if the bandwith to the internet is limited. (For internal icecast-2 server only).
Password	This is provided by your streaming service provider. (Not for internal icecast-2 server)
Play sound on error	You can indicate here how often the Maven makes a downward series of tones when internet- or serverproblems occur: Never, 1 time, or every five seconds.

4.4.3 Downloading and uploading stream settings

To save and quickly restore stream settings, these settings can be downloaded and uploaded as XML file. This option is presented on the streams page when a stream has been configured:

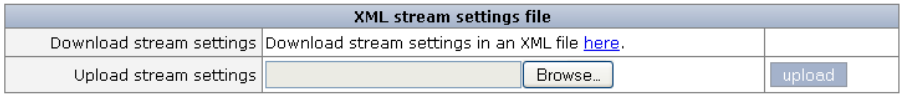

Fig. 10: Down- and uploading stream settings

Click on the link 'here' to download the stream settings. Note that settings on the other pages are not included in the downloaded file.

Click on the 'Browse' button and navigate to the XML file with settings that you want to apply and click 'open'. Click on 'upload' to load the settings. These settings are loaded now, click on 'Save' to save and apply these settings.

4.5 Recording settings

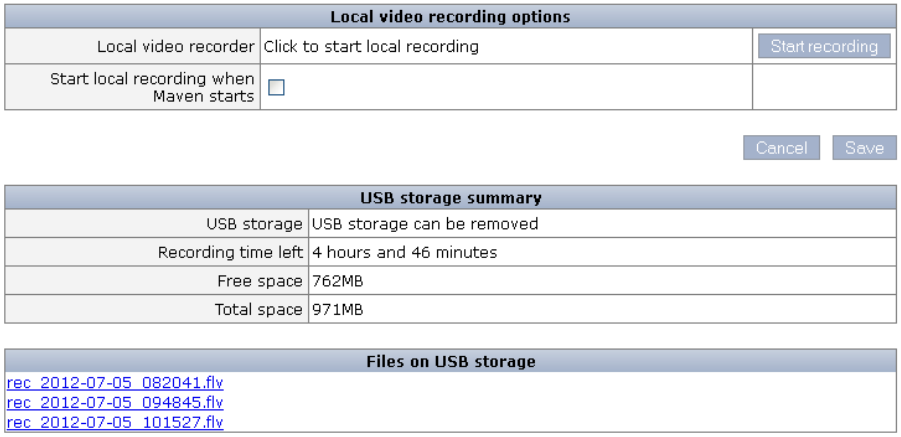

Fig. 11: Maven opname pagina

To make video recordings, see section 7.

Local video recorder	Depending on the situation (USB storage present, stream configured, recording running or not) you can start a local recording here by clicking on the corresponding button. The status of the recorder and the remaining recording time available on the USB storage are shown on this line.
Start local recording when Maven starts	Here you can set that immediately at startup the Maven should make a recording of the stream that is sent.

Additionally, you find information on this page on the USB storage that is connected:

USB storage	If the storage is preset, in use, or can be removed.
Status	Depending on the situation, information on the USB storage is given here, such as the name of the recording that is being made, if the USB storage was removed during recording, etc. This line is not always shown.
Recording time left	The space left on the USB storage that is available for recordings, converted to hours and minutes. This depends on the bit rate that is set for the audio and video. The higher the bit rate, the smaller the amount of recording time that is available on the USB storage.
Free space	Free space on the USB storage, in Megabytes
Total space	Total space on the USB storage, in Megabytes

At the bottom of the page the files on the USB storage are shown. When this page is viewed with a browser, the recordings are presented as links. These links can be used to download the recordings from the USB storage.

Next to recordings a trash can icon is shown. This can be used to remove the recording from the USB storage.

4.6 Miscellaneous settings

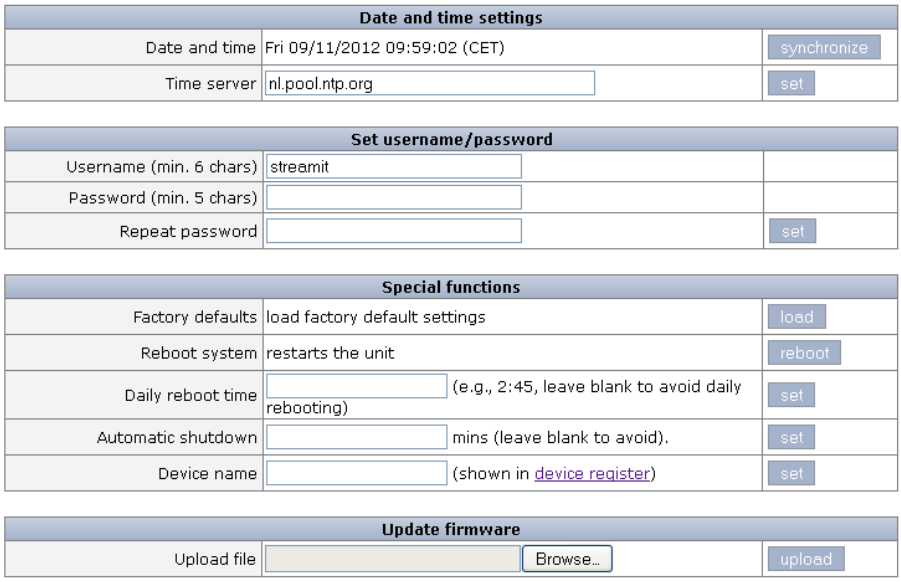

Fig. 12: Maven miscellaneous settings page

Here the following functions are available:

4.6.1 Setting the time

The time on the Maven can be changed by clicking 'synchronize' under the heading 'Date and Time Settings'.

The URL of the time server with which the Maven will be synchronized can be given in the field 'Time Server'. Click on 'set' to make this setting active.

4.6.2 Username and password for the webinterface

By default the username and password are set to 'streamit' and 'lukas'. You can change those by navigating to the page 'Misc/Other' (see 3.2 for opening the webinterface) and entering the desired username and password below 'Set Username/Password'.

The Maven must reboot to make the new settings active.

4.6.3 Loading factory default settings

The Maven factory default settings can be loaded by clicking the 'Load' button below 'General settings'.

The factory default settings are loaded now, but not yet saved. If you restart the Maven without saving settings, nothing has changed and the old settings will still be active.

The settings are saved by clicking 'Save' on one of the other pages. The Maven must reboot to activate the new settings.

4.6.4 Reboot

You can restart the maven by clicking 'reboot' below 'Special Functions'.

4.6.5 Setting daily reboot

When using the Maven for a long time, it is recommended to reboot the Maven once every 24 hours. You can do this automatically by entering a time in the field 'Daily reboot time'. The restart of the Maven takes approximately 1 minute. Give the time in the format hh:mm and leave the field empty if you do not want the Maven to reboot each day at the same time.

4.6.6 Setting automatic shutdown

The Maven can be configured to automatically switch off after a user-set period of time. This can be used if, for example, the Maven is sometimes accidentally switched on or to avoid considerable streaming costs. The time is set in minutes and countdown starts after the Maven has fully started. Leave the field empty if you do not want the Maven to shutdown automatically after a give period of time.

4.6.7 Setting device name

To easily recognize the Maven in the Streamit device register (http://register.streamit.eu) is it possible to give each device an unique name, chosen by yourself[5].

4.6.8 Updating firmware

The Maven firmware can be updated by clicking 'Browse' below 'Update Firmware'. Navigate to the firmware that you received from Streamit, or that you downloaded from the Streamit website and click 'open'.

Click on 'upload' to load and execute the firmware update in the Maven. The Maven will install the new firmware and reboot. You will automatically be redirected to the Streamit Maven register (see 11).

Note: Do not turn off the Maven during the update, the update process should not be interrupted.

5 Testing the Maven

The easiest way to test the Maven is to switch it on. If everything is OK,

you will hear after some time (approximately 30-50 seconds) 3 tones increasingly higher tones from the loudspeaker of the Maven. This is the sign that te Maven has boot completely.

[5] If no device name is set, but the Maven streams to the Streamit EventCaster platform, the mount point is automatically sent as name

After that you can go to the video platform to see if the video actually appears. What should appear, depends on your streaming service provider. On the Streamit portal (http://eventcaster.streamit.eu/) a play button appears automatically at the station where the Maven transmits to, when switching on a well-configured Maven. An example of such a play button is shown in figure 13.

Fig. 13: Play button for a video station with a live video stream

When the Maven detects an internet- or serverproblem, it will play a downward tone every 10 seconds (depending on the stream settings, see 4.4).

6 Viewing the status of the Maven

If a monitor is connected to the Maven, the global status is shown on it. More detailed information can be found on the Status page of the configuration interface (see section 3 for more information on how to call up this configuration interface):

On the status page you can find the following information, this is refreshed every few seconds:

Overall status	
Ethernet MAC address	00:30:18:4c:a2:0c
Local IP address	192.168.10.100
Uptime	01:00:00
Packets sent	224331
CPU load	37 %
CPU temperature	59.0°C
Software version	2.18.0

***Audio/video* stream info**	
Streaming mode	Streamit AVDP [RTMP]
Configuration	[AAC] 64 kbps / 44.1 kHz / 16bit / stereo [H264] 300 kbps / 768x576 / Moderate
Status	Running (Encoder running; SDP file not required)
Local video recorder	Disabled

***Audio-only* stream info**	
Streaming mode	external icecast-2
Title	Streamit manual
Audio quality (MP3)	24 kbps / 24 kHz / 16bit / mono
Stream URL	http://avdp.streamit.eu:8000/streamit
Status	Running (Encoder running; Internal server not required)

Fig. 14: Maven status page

Ethernet MAC address	Physical address of the ethernet interface of the Maven.
Local IP address	Address the Maven has in the local network.
Uptime	This indicates how long the Maven is on already.
Packets sent	Amount of bytes sent to the network.
CPU load	The load of the processor of the Maven at that moment.
CPU temperature	The temperature of the processor of the Maven at that moment.
Software Version	Version of the current firmware.

Information is also given per stream. The Maven can send up to two streams at the same time, an audio-video stream and an audio-only stream (see section 4.4 *Streaming configuration*).

For the streams the following information is shown:

Streaming mode	The streaming method and protocol being used.
Title	The name that is given to the stream.
Configuration	The settings for the audio and video part of the stream.
Stream URL	Address at which the stream can be watched or listed to on a locally connected PC. When clicking this link, the media player on your PC should start, if installed. Our preferred media player is VLC, downloadable for free at http://www.videolan.org/vlc.
Status	This shows if the encoder is functioning well (text is black) or not (text is red).
Local video recorder	Here you can see the status of the video recorder.

7 Making a video recording

The Maven can make a recording on attached USB storage of the audio-video stream that is transmitted. The following applies to recordings of the stream that is transmitted:

- A USB storage device must be attached with sufficient free space available
- A stream must be transmitted, no recording can be made without transmitting a stream
- The recording has the same quality as the stream that is transmitted
- The recording must be started
- The recording must be stopped before the Maven is switched off

The requirements on the USB storage, the stream and the starting and stopping of the recording are explained in the following sections.

7.1 USB storage

In principle any USB storage device can be attached and used, USB sticks as well as USB hard disks. Note that USB hard disks may require additional power supply in some cases.

It can be convenient to use a USB extension cable to connect the USB storage. The back of the Maven is not always well-accessible and an extension cable can bring the USB connection to a more accessible location.

There must be sufficient space available on the USB storage to make a recording. At the start of the recording there must be room for at least 5 minutes of recording. If less space is available than that, the recording will not start.

If space runs out during recording and the remaining space is less than 5 minutes of recording, a warning signal is sounded.

If space runs out during recording and the remaining space is less than 1 minute of recording, a warning signal is sounded and the recording is ended.

In case the USB storage is removed during recording, the recording is stopped. If USB storage is attached again, a new recording is started immediately. Similarly, when the Maven should make a recording immediately at startup and no USB storage is available: When USB storage is attached, the recording will start.

7.2 Stream that is recorded

To make a recording, a stream must be configured and running. The quality that is configured for the stream is the quality of the recording.

Because the stream and the recording are related, the stream is interrupted when the recording is started or stopped.

7.3 Starting and stopping the recording

Starting and stopping the recording can be achieved in four ways:

- On the Maven itself via the global status screen
- Via the configuration interface using a browser
- Using commands via the serial port (see section 8 for more details)
- The recording can start when the Maven starts (see 4.5 *Recording settings*). However, the recording cannot be stopped automatically when the Maven is switched off.

When the Maven is switched off, the recording is not stopped automatically. This can result in a failed recording. You should therefore always stop the recording yourself before switching off the Maven.

Because the recording is coupled to the stream, interruptions of the stream and the recording affect each other:

- When the stream starts, the recording starts
- When the stream is interrupted, the running recording is stopped and a new recording is started
- When the stream stops, the recording stops
- When the recording starts while the stream is running, the stream is restarted
- When the recording stops while the stream is running, the stream is restarted

The stream is restarted and therefore shortly interrupted in the case that the recording stops because the USB storage is full.

7.4 Downloading and removing the recording

Recordings on the USB storage can be copied and removed by disconnecting the USB storage from the Maven and connecting it to a PC.

On the page 'Recording' of the configuration interface the files on the USB storage are shown. When this page is viewed with a browser, the recordings are presented as links. These links can be used to download the recordings from the USB storage.

Next to recordings a trash can icon is shown. This can be used to remove the recording from the USB storage.

8 Controlling the Maven via the serial port

The components of the Maven (videostreamer, videorecorder en audiostreamer) as well as the Maven itself can be controlled with commands via the serial port. The following commands are available:

	start	stop	status	reboot
videostreamer	✓	✓	✓	
videorecorder	✓	✓	✓	
audiostreamer	✓	✓	✓	
system		✓		✓

When the command SYSTEM STOP is used, the Maven will switch itself off completely. If the Maven is switched off, it is not possible to switch the Maven on using a command via the serial port.

The COM1 connection is used for the control of the Maven via the serial port with the following configuration:

Speed (baud)	115200
Data bits	8
Parity	None
Stop bits	1

9 Switching off the Maven

You can switch off the Maven by pressing the power button. If no recording is being made, it is also possible to turn the Maven on and off with a timer or with a central switch, for example as part of an installation that is switched on and off with a single switch.

The Maven can also be switched off via the serial port, see section 8 for details.

10 Restoring factory default settings

It is possible to restore the factory default settings without having access to the webinterface of the Maven. There are two methods which are explained below:

Method 1: File on USB storage

- Place a file named `reset` or `reset.txt` on the USB storage (it does not matter what is in the file, but the file will be removed after loading the factory default settings)
- Insert the USB storage into one of the Maven USB ports
- Switch on the Maven
- Wait till you hear 3 short beeps, the Maven has now loaded the factory default settings

If the files `reset` and `reset.txt` are both on the USB storage, both are removed.

Method 2: Keyboard

- Connect a keyboard to the Maven
- Reboot the Maven while pressing the CTRL button
- Wait till you hear 3 short beeps, the Maven has now loaded the factory default settings

The factory default settings are loaded now, but not yet saved. If you restart the Maven without saving settings, nothing has changed and the old settings will still be active.

When you do no longer have access to the Maven, you can also follow the steps as described in 14.12.

11 Maven register

If you switch on the Maven, it will report to the Streamit Maven register, http://register.streamit.eu/maven/ (see figure 15).

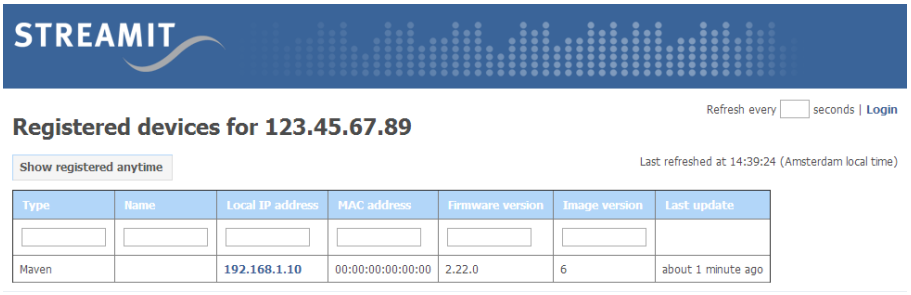

Fig. 15: The Maven register

Device type	This is 'Maven' or 'Maven Nano' in the Maven register
Device name	Name as set on the miscellaneous settings page (see section 4.6)
Local IP address	The local IP address of the Maven. You can click on this link to navigate with a browser to the configuration interface of the Maven
MAC address	This is the MAC address of the Maven
Firmware version	The firmware version of the Maven, compare this to the version of this manual
Image version	This is the version of core of the Maven
Last update	The moment at which the Maven sent this information, which is a few seconds after switching on the Maven

By default the Maven register will show only devices that have registered in the past 24 hours. If the Maven is on for a longer period of time, click on the button 'Show registered anytime' to see devices that have registered any time in the past.

12 Specifications

SPECIFICATIONS	
Video encoder	H.264
Sample frequency	25 fps
Bit rate (max)	200-10000 kbps
Resolution (max)	720x576 (adjustable)
Audio encoder	Stereo AAC, MP3 (not for the Maven Nano)
Sample frequency	44.1 Khz
Bit rate (max)	128 kbps
Ethernet controller	10/100/1000 Mbps
Power supply	100 - 240VAC/12Vdc - 5A
Webinterface	English

INPUTS (Maven)	
Video signal	NTSC, PAL
Video connection	S-video, Composite
Audio	Stereo RCA

INPUTS (Maven Nano)	
Video connection	S-video, Composite
Audio	Mic/Line

OUTPUTS	
Ethernet	RJ45
Monitor headphones jack	3.5 mm

13 Streamit support

With this manual we have tried to make the working of the Maven as clear as possible. We can imagine, however, that you may come across a question or problem that is not covered in this manual That that case we recommend to see if there is information on this matter on the Streamit website: http://nl.streamit.eu.

We appreciate your opinion on this product and your tips for improvement. So, feel free to drop by or send us an email.

We wish you much pleasure using your Maven.

14 Troubleshooting

In this section will you find tips to solve several possible problems. We advise you to read this carefully before contacting us. (see 1.4 *If you do not succeed*).

14.1 The lights at the network connector do not light up

Possible cause	Solution
The Maven is not powered on	Switch on the Maven
The network cable is not attached to a working network connection on the other side	Try if the network connection works via the cable if you connect the network cable with a PC or laptop

14.2 The Maven makes a downward tone

Possible cause	Solution
The Maven is not connected to the network	Connect the Maven to the network with a network cable in LAN1
The network cable is connected to the wrong LAN connector	Connect the Maven to the network with a network cable in LAN1
The stream settings of the Maven are incorrect (External stream server, Stream mount point, etc.)	Check the stream settings of the Maven (see 4.4)

14.3 Suggestions when using the Roland VR-3 / VR-5

Possible cause	Solution
The Roland VR-3 / VR-5 is not powered on	Switch on the Roland VR-3 / VR-5
The USB output of the Roland VR-3 / VR-5 is not in streaming mode	Put the USB output in streaming mode (see the user manual of the Roland VR-3 / VR-5)

14.4 The stream is not visible in the video station

Possible cause	Solution
The stream settings of the Maven are incorrect	Check the stream settings of the Maven (see 4.4
The settings of the video station are incorrect	Check the settings of the video station (see manual for station managers on the portal)

14.5 The stream does not get a play button in the video station

See 14.4.

14.6 There appears no image

Possible Source	Solution
The Maven does not send the stream to the correct ports on the video platform	Check if the ports are configured correctly (see 4.4
A firewall between the Maven and the External stream server blocks UDP ports	Make sure that all UDP ports are open for outgoing data on the firewalls. If this is difficult or not possible, you can limit the number of Dynamic output ports on the Maven network cofiguration page.

14.7 The image is blue

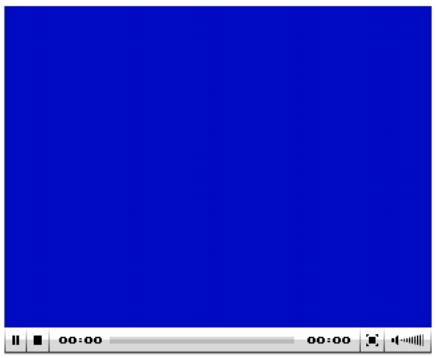

Fig. 16: The video player shows a blue image

Possible Source	Solution
There is no signal on the video input of the Maven	Make sure there is a signal on the video input of the Maven

14.8 The image is black and white, the colors are not right

Possible cause	Solution
The Maven is configured for the wrong video input (Composite / S-Video)	Choose the right video input (see 4.3)
The video signal that comes into the Maven is not of good quality	Connect a monitor to the signal that goes into the Maven to see what the quality of the input signal is

14.9 The picture is pixelated

Possible cause	Solution
Bad network cable between the Maven and the rest of the network	Use a cable with proven quality
Interference on the signal of the network cable	Use a Cat5e or Cat6 cable
Malfunctioning of the local network	Check the local network (Cables, routers, switches) for possible problems
Failure of the internet connection (delay, jitter, packet loss)	Test the connection on suitability for video streaming on the website of Visualware: http://myspee.dvisualware.com/
	On the video platform is packet loss logged. This information can be obtained from the person from whom you have received or bought the Maven.

14.10 The image has stopped

See section 14.9, particularly the solution for a bad internet connection.

14.11 There is no audio in the stream

Possible cause	Solution
The selected audio input is not available	Check the selected audio input in the configuration interface and select a different audio input, if necessary
Mic/Line is selected as audio input and both an audio-video and an audio-only stream are configured	Use a different audio input or choose between the audio-video stream and the audio-only stream
The audio cables are connected to the wrong input	Check which audio input is selected in the configuration interface and connect the audio cables to the correct input

14.12 The webinterface of the Maven is not accessible

There can be serveral problems, for example that the Maven has a static IP address which is not valid or not configured correctly.

The best method to get access to the webinterface of the Maven depends on your Maven image version and your specific situation. You can see the Maven image version information when you connect a monitor to the VGA-out connector of the Maven:

your situation:

- Maven image version 5 or higher (the Maven shows a white screen with the Streamit logo on the connected monitor): Follow the steps given in section *Using the configuration interface on the Maven itself* below.
- Maven image version 4: Follow the steps given in section *Using the on-board DHCP server* below.
- Maven image version 2 or 3: When the Maven is in a network with a DHCP server, follow the steps given in section *Using a DHCP server in the local network* below.
- If none of the above options is applicable for you, follow the steps given in section *Maven en PC in a separate network* below.

Of course, you can always reset the Maven to the factory default settings, see section 10 for details.

Using the configuration interface on the Maven itself

The configuration interface on the Maven is accessible by connecting a monitor, keyboard, and mouse and pressing `F10`. Press `Esc` to leave the configuration interface.

Using the on-board DHCP server

Starting with image version 4, the Maven has a DHCP server on board which is coupled to the LAN2 connection. You can use this by connecting an ethernet cable to the LAN2 connection on the Maven an putting the other end of the network cable directly in your PC (most modern operating systems can handle this). Your PC will get a network address assigned by the Maven

Then start the browser of your PC and enter the following URL: `http://192.168.254.1/`, then the webinterface of the Maven will appear.

If your PC does not receive a network address from the Maven with the cable directly between the Maven and your PC, then connect both your PC and the Maven to 1 switch. Then try the URL `http://192.168.254.1/` again in the browser of your PC. Note: other devices on the same switch can also get a network address assigned by the Maven.

If the network to which the Maven is connected via the LAN2 connection also starts with 192.168.254, then the Maven will automatically switch to 192.168.1. The URL for the webinterface of the Maven is then: 192.168.1.1

Do *not* connect the LAN2 connection of the Maven to a network where already a DHCP server runs. This will lead to network problems, because the DHCP server on the Maven may also assign network addresses to other devices on the network.

Using a DHCP server in the local network

When you are in a network with a DHCP server, the following steps are the easiest method to gain access to the webinterface of the Maven:

- Keep the network cable in the Maven LAN1 connector
- Put a network cable in the Maven LAN2 connector on the back side of the Maven (there are now two network cables in the Maven)
- Connect a monitor to the VGA output of the Maven
- Reboot the Maven
- If all is OK, 'Fallback address (dhcp)' now appears followed by the address to which you can navigate using a browser to change the settings of the Maven.

Maven en PC in a separate network

The webinterface of the Maven is always accessible on another address: http://10.0.0.254. To use that, you need to connect your PC and the Maven together with a switch and configure the PC with the following settings (the other settings can remain the same):

IP adres	10.0.0.10
Netmask	255.255.255.0

You can now browse to http://10.0.0.254/ and change the settings of the Maven.